

# EXHIBIT 16

# Shah, D.M.(Dipak)

From:

Stockman, Tom J

Sent:

Monday, September 25, 2000 1:18 PM

To:

Shah, D.M.(Dipak)

Subject:

Re: Post-MTBE production : Send all isobutylene to Alky 2



William D Sleeper 09/20/2000 01:52 PM

To: Tom J Stockman/Beaumont/Mobil-Notes@Mobil

cc: Fabian V Gabrysch/Beaumont/Mobil-Notes@Mobil, Dolye E Erickson/Beaumont/Mobil-Notes@Mobil

Subject: Post-MTBE production: Send all isobutylene to Alky 2

#### Tom.

As discussed during the FCC YES study and subsequent evaluations, here's a rough summary of the requirements to revamp Alky 2 to process all the isobutylene currently converted into MTBE in addition to the planned "Increase Alky 2 refrigeration" and "Add additional reactor" projects:

#### Assumptions:

Base rate 15,500 KBD Expansion 6,800 KBD

Future

22,300 KBD

#### Scope:

Add additional 6000 B/D Exxon Autorefrigerated Unit

Add new 3500 hp motor driven compressor plus vapor line to compressors

Add ~35 MMBTU/hr worth of cooling by air coolers for new refrigeration compressor plus foundation / structure Revamp the MTBE D1 tower to be a deisobutanizer

Possibly convert D103 or new tower for additional DeBut capacity or D1 sidedraw for nC4 (with product / IC4 recycle pumps)

Possibly add additional coalescer / caustic scrubber / water wash

Replace olefin feed pumps

Replace isobutane from field pumps

Add additional DeBut bottoms pump

Replace effluent pumps

Replace DIB feed pumps

Replace refrigeration recycle pumps

Possibly increase feed / effluent surface area or refrigeration receiver / effluent area

Increase tankage for fresh and spent acid plus line capacity between refinery and Arch chemical

Replace relief valves / control valves as required

Increase capacity of blowdown system, blowdown drum, offgas scrubber, degasser and associated pumps

Power / Substation to provide incremental power requirements for compressor and pumps listed about

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BM Alky 15:5 -> 21		_		
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Boing ward Refiniçand	Ac	id sowing tome Ingra	<del></del>	
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PIMS MODEL SOLUTION SUMMARY REPORT Examinate Bearmant Retinery MODEL: MTBEPHASEOUT Study 2000 CoPtan Prices for 2004

2000 Correct Prices lay 2004									
	2005 w LSM			Buño					
	Project	O2 Mandate	Sell Refinery	IEOCotene			No 02	Build	
	facilities	MTBE Banned	MTBE	Unit	Alky	No O2 Mandate	Mandate, MT85	IsoOctene	ABry
O2 MANDATE	YES	YES	YES	YES	Expansion	MTRE Allowed	Barned	Unit	Expansion
MTBE USED	YES	NO	NO	NO	YES	NO	NO	NO	NO
ETHANOL USED	NO	YES	YES	YES	NO	YES	NO	NO	NO
MTBE PLANT CONVERTED	NO	NO	NO	YES	YES	NO	YES	YES	YES
		•		765	NO	NO	NO	YES	NO
CASE NO:	1.0	2.0	3.0						
OBJ FUNC, KS/D	4527.5	4445.8	4512.2	4.0		7.0	9,0	10,0	11.0
OBJ FUNC, MS/Y;	1652,5	1622.7		4493.8	4484.4	4528.6	4439,1	4492.1	
Delta OBJ FUNC, MSYI	BASE	-29.8	1647.0	1640.2	1535.8	1652.9	1620.3	1639.6	1635,9
Deta OBJ FUNC, MSAY		Base						1000.0	1033,9
Deta DBJ FUNG, MS/Yr		Dase		17.5					
Delta OBJ FUNC, MS/Yr		D-43-0			14.1				
Delta OBJ FUNC, MS/Y/						1	Base	19,3	
						1	Base		15,6
Rely MIBE BEV(\$/8b)			8.9						10,0
Could Mark Inc.									
Crude/Cal Rates									
Total Cruste									
FCC	363.4	363.4	363.4	363 4	363.4	363.4	_		
MTBE(Pure)	112.4	112,4	112.4	112.4	112.4		353,4	353,4	363.4
Iso-Octene	3.0	0.0	3,0	0.0	0.0	112,4	117.4	112.4	112,4
Alky	0.0	0.0	0,0	3.0	0.0	3.0	0,0	0,0	0.0
~ary	15.5	15,5	15,5	14,9	21.3	0,0	0.0	3.0	0.0
Gasolines Sold			•	11.3	41.3	15.5	15,5	14.6	21.3
2249/mes 2010									
Conv NE SUL (9 #)	61.2								
Conv SW SUL(7.8 #)	14.7	13,8	34.2	32.6	25,5	55.8	7.0	***	
Conv NE RUL (9 #)	43.2	14.7	14.7	14,7	14,7	14.7	1.0 14.7	28,9	70.8
Corn SW RUL(7.8 p)	42.5	94,9	77.9	83.9	95.3	47.1	99.0	14.7 86.4	14.7
Total Conventional	161.6	42.5	42.5	42.5	42.5	\$2.5	42,5		99.4
	701.0	165,8	169.3	173,6	178.0	160,1	163.2	43.5	42.5
Reim SW SUL	25,0	25.4		•			103.2	172.5	177.4
Reim SW RUL		25.0	25.0	25.0	25.0	25,0	25.0	0.5	
Total RFG	,15.0 40.0	15.Q	<u>15 0</u>	<u>15 0</u>	15.0	1 <u>5.0</u>	15.0	25,0	25.0
	40.0	40.0	40.0	40.0	40.0	40.0	40.0	<u>15.0</u> 40.0	<u>15.0</u>
TOTAL MOGAS	201.6	$_{295.85}  u^{2}$	λή <sub></sub> -					40,0	40.9
% Super	50,1%	(26.0%)	309-3	213.6	218.0	200,†	203.2	212.5	217.4
• •		( 222)	35,3%	33.8%	29.9%	47.7%	23.0%	32.3%	27.8%
IC4= to Fuel		1.0							27.6%
IC4 Sales	11.3	10,4	11,3				0.9		
Sulluric Acid, ST/O	160	160	160	12.6	8.7	11.3	10.3	12.5	8.7
		,,,,	100	174	221	150	160	170	221
FEEDSTOCK PURCHASES									***
		,							
Cusiana - 4320954	53.2	53.2	53.2						
Maya 4321133	108.5	108.5	108.5	53.2	53,2	53.2	53.2	53.2	53,2
Oso 4920166	70.0	70.0	70.0	108.5	108.5	108.5	108,5	108,5	108.5
Omeca 4018951	£31,7	131.7	131.7	70.0	70 O	70.0	70.0	70.0	70.0
Nat Gasoline from WT	4.6	4.6	4.5	131 7	131.7	131,7	131,7	131.7	131,7
MCC B=B Mix	0.8	0.0		4.6	4.6	4.6	4.6	46	
Whari Natural Gasol	1.2	2.1	0.8	0.B	0.a	0.9	0.0	0.8	4.6
He transf	1.0	0.0	12.0	12.6	12.7	1.4	1.3	12.6	0.8
Ethanol	0.0	2.6	1.0	0.0	0.0	1.0	0.0	0.0	12.7
M78E	5,3	0.0	2,6	2.6	2.6	0,0	1.7	2.1	0.0
Purchased Pygas	2.0	2.0	0.0	Ð.Q	0.0	37	0.0	2.1 0.0	1.9
Iso-Octene	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Purchased Hvy Naphth	2.5	9.1	0.0	0.0	0.D	0.0	0.0	0,0	2.0
Purchased VGO	30.8	30.4	5,2	4.5	4,3	2.5	7.7	4.8	0.0
		30,4	30.0	18.6	15.3	30.a	30.4	22.7	4,3 15,5
UTILITY PURCHASES	•								10.0
Hydrogen (18) from A									
Fuel Gas foeb	22.0	20.2	21,2	15.4	13.8	24.0			
Power kwh	23.4	22.6	23.9	23.9	23.6	21,9	21.6	17.7	14.0
Cal/Chem US\$	112.4	111.3	116,4	127.7	113.6	23.4	22.5	23.8	23.8
ZSM-5 US \$Ao	53.1	52.3	53,1	51.2	51.4	112.5 53.1	108,8	128 1	113,6
FCC Cat US Mon	0.0	0.0	0.0	0.0	0.0		52.3	51,6	51.4
Ak Acid Ion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
G&D Addt US S	160	160	160	174	221	0.0 160 ·	0.0	0,0	0.0
Contract Vol 3	9.3	9.6	9.6	92	9.0	9.3	160	170	<b>Z</b> 21
PRODUCT SALES							9,5	9.3	9.0
F195400003944									
ConviNE SUL	61.2	43.6							
Corv SW SUL	61,2 14.7	13.8	34 2	32.6	25.5	55.8	7.0	20.0	
Conv NE RUL	14,7	14.7	14,7	14 7	14.7	14.7	14.7	28.9	20.8
Conv SW RUL	43?	94,9	77.9	83.8	95.3	47.1	99.0	14.7	14,7
Re'm SW SUL	42.5	42.5	42.5	42.5	425	42.5	42.5	85 4	99.4
Relm SW RUL	75.D	25.0	25.0	25 0	25 0	25.0	** -	42.5	42.5
	15.0	15 D	15.0	15.0	150	15.0		25.0	25.0
						•4.5	15,0	15.0	15.D

C: MaspenTech Models WTBEPHASEOUTWTBEPhase outsummary.xls

9/25/2000

Refinery MTBE Benzene	0.0	0.			0 0.0	0.0	) a	0	D.O O.
Mixed Xylenes	14.2	12				14.2			2.8 12
Paraxylene	9.0 6.5	9.				9.0	9.	-	i.o 12
ALIA Jei	48.3	6. 48.				6.5	6.		i.5 6.
Military Jet JP-8	Z2.2	23.		,		48.3			
U/Gra LS Diesel	21.4	21.				22.2	23,	D 22	
Light Cycle Oil	0.8	0.0			• • • • • • • • • • • • • • • • • • • •	21.4	21.	4 12	
Lubes	13.6	13.6				8.0	0.8	8 D	8 0.1
Waxes	2.4	2.4				13.6	13.0		.6 13.6
Low Sulfur No6 (CUA)	10.8	10.8				2.4	2.4	_	.4 24
Sturry C6	6.9	7.1		,-		10.8	10.8		8 10.8
Pet Coka High Suthar .	12.9	12.9				6,3	7.1		
P-P Mix(65 %)	17.8	17.8		17.5		12.9	12.5		9 12,9
Рторале	14,4	14.0		14.6		17.8	17,8		6 17.4
F8utane	11,3	10,4		12.6		14,4	14.0		
N-Butane	18.8	19.1		20.0	8,7	11.3	10.3		5 8,7
Fuel Gas	7.6	8.0	7.5	7.6	19.8	19.0	19.0		9 19.7
Net Offgas MCC, FOEB	2.9	2.9	2,9	2.9	7.5	7.6	7.9	7.5	7.5
Cat Cake, 5 M .	4.8	4.8	4.8	4.7	2.9 4.7	2.9	2.9	2.5	<b>₹</b> 2.9
Sulfur, 3, 19 fut	1.6	1.5	1.6	1.5	1.5	4.8 1.6	4.8 1.6	4.7	
CAPACITY UTILIZATION								1.5	1.5
****************						•			
Cnade Unit A	131,7	131.7	131.7	131.7					
Crude Unit B	231.7	231.7	231.7	231.7	131.7	131.7	131.7	131,7	131.7
Isom Prir	24.3	25.5	35.3	231.7 35.8	231.7	231.7	231.7	231.7	231,7
Isom Reactor	13.4	13.8	16.2		35.8	24,5	24.6	35.7	35,9
Delsohexanizer	. 36.3	31.7	36,5	15.3 38.5	16.3	13.5	13,6	16.3	16.3
Prtr-3	47.4	49.1	49.1	48.8	35.4	36.4	32.6	36,5	35,4
CCR-3	75.0	75.0	75.0	75.0	48,5	47,4	49,1	49.0	48.6
Prtv-4	56.2	58.3	55,4	55,7	75.0	75.0	73.8	75.0	75.0
CCR-4	85.0	ß5.0	85.0	85.0	55.9 85.0	56.2	57.3	55,4	55.9
Udex	25.5	24.1	24.2	24.1	24,0	85.0	85.0	85.0	85,0
Yoluene Recvy Cap	D.3	0.9	0.8	0.8	0.8	25.5	24.0	24.0	23.9
Benzene Recuy Cap	7.7	5.7	6.2	6.3	6,3	0.3 7.7	0.9	ÔB	8.0
Udex Raffinale Cap	17.5	17.5	17.1	17,0	16.9	17.5	5.7	6.3	6.3
Benz + Tokkene	8.0	6.5	7.1	7.1	7,1	8.0	17.5	16,9	16.9
Pygas Hydrotrealer Paraxylene Cap	2.0	2.0	2.0	2.0	2.0	2.0	6.5 2.0	7.1	7.0
Hvy Ref Spetter	6.5	6.5	δ.5	5.5	6.5	6.5	6.5	2.0 6.5	20
Mixed Xylene Recy	26.3	32.0	28,3	29 D	30,5	26.3	32,0	30,1	6,5
Rerun Twr Owhol	11.3	11.3	11.1	11.0	11.0	11.3	11,1	10.9	31.1
Rerun Twr Birns	1.6	1.4	1.4	1.4 1	1.4	1.6	1,4	1,4	10,9
No. 1 Debut Ovtid	9.7	9.9	9,7	9,6	9.6	9.7	9.7	9.5	1.4 9.6
Bender (Trt-3)	7.7	7.7	77	7.7	7.7	7.7	7,7	7,7	
CHD-1 Kero	22.2	23,2	22.8	22.5	22.5	22.2	23.0	22.6	7.7 22.5
En. CHD-1	48.3 48.3	48.3	48.3	48.3	48.3	48.3	48.3	48.3	48.3
CHD-2 LSD	40.3 21,6	48.3	48.3	48.3	48.3	48.3	48.3	48.3	48.3
HDF	25.3	21.5	20,6	7.6	3.7	21.6	21.5	12.3	3.9
CHD-2 Spager Tower	25.7	25.6 27.0	26.6	26,6	26.5	25.3	26.6	26.6	26,6
Eff CHO-2	47.3	48,7	27.0	27.0	27.0	25.7	26.9	27.0	27.0
FCCU	112,4	112,4	47.8	34.6	30.7	47,3	48.5	39,3	31.0
Wet Gas Cap(MSCF/D	78.3	78.7	112.4	112.4	112,4	112.4	112.4	112.4	112.4
High Pressure Capt	60.8	60.9	78.4	79.8	80.2	78.3	78.2	79,3	60.1
SOX, bs/hr	3.5		50.9	61.2	61,3	60,8	60,9	61.1	61.3
Cat Coke, msbs/h	79.2	3.6 79.4	3.5	3.4	3.3	3.5	3.6	3.4	3.3
FCC Burn Air, most	196,0	196.D	79.2	76.2	77.9	79.2	79.4	78.5	77,9
FCC Gasoline Spill	53.2	52.8	198.0	195.0	196.0	196.0	196.0	196.0	196.0
GP5W PP Recovery	15.0	15.D	53,4 15.0	55.5	56.1	53.2	57.6	54.7	56,0
Alloylate	15.5	15.5		15.0	15.0	15.0	15.0	15.0	15,0
MIBE	3,0	0,0	15.5 3.0	14,9	21.3	15.5	15,5	14.6	21.3
Iso-Octene Unit	8.0	0.0	0,0	0.0	0.0	3.0	0,0	0.0	0.0
Hydrocracker	65,0	65.0	65.0	3.0 65.0	0.0 65.0	0.0	0.0	3.0	0.0
HDC Hyd Makeup	195.3	192.5	195,0	190.4		65.0	65.0	65.0	65 G
HDC Gasotne Draw	11,2	18.0	18.0	18.0	189.0 18.0	195,3	192.5	192.D	189,1
HDC Lt Naphtha Dra	31,D	75.9	25.9	25,5	75.3	11.3 30.9	180	18.0	180
HDC Kero Draw	0.0	0.0	0.0	0.0	0.0	0.0	27.2	25.6	25.3
Coker	39.7	39.7	39.7	39.7	39,7	39.7	0.0	0.0	0.0
Coke, tons	2.6	2.6	2.6	2.6	26	2.6	39.7	39.7	39.7
Duasai	4.1	4.1	4.1	4.1	4.1	4.1	2.6	2.5	2.6
Furtural Units Katone One	24.0	24.0	24 0	24.0	24.0	24.0	4.1 24,0	4,1	4.1
	2.9	2.9	2.9	2.9	2.9	3.5		24.0	24.0
Ketone Two HZ Plant	10.7	107	10,7	10,7	10.7	10.1	2.9 10.7	2.9 10.7	3.5
Cold Box(MMSCFD)	0.0	D.D	00	0.0	0.0	0.0	0.0		10.1
Sulfur Plant	. 35.7	35.2	35 2	35.2	35.2	35.2	35.2	0.0 35,2	0.0 35.3
nerven sai / META	0.5	D,5	0.5	D.5	0.5	0.5	0.5	0.5	35.2 0.5
ECONOMIC SUMMARY ANALYSIS									0.5
PRODUCT SALES	0.65.77								
FEEDSTOCK PURCHASES	9457,7 4438.9	9396.1 4474 D	9630,1 4620 1	9355.6	9283.2	9419.3	9320 6	9420 9	9265.2
		77740	10/01	4375,8	4314.9	4399.3	4403,9	4439.0	4299 0
GROSS MARGIN NET UTILITY COSTS	50188	4922.2	5010.0	4979.8	4968.3	5020.0	49167	4981,9	4966.2
	491.3	476.3	497 8	486.D	483.8	491,4	477.5	489 8	484.2
NET OPERATING MARGIN	4527.5	4445.8	4512.2	4493.8	4484,4	4528,5	4439.1	4492.1	4487 O

 $C: AspenTech\ Models \ WITBEPHASE OUT \ WITBEPhase outsummary. x is$ 

9/25/2000

# MTBE Phaseout Study

#### Introduction

Legislation has been proposed to eliminate MTBE from the US gasoline pool due to its toxicity and recent evidence of MTBE contamination of groundwater. An LP study was conducted to determine the impact of such legislation on the Beaumont refinery and evaluate several options for handling the displaced refinery Isobutylene. The Beaumont Low Sulfur Mogas project facilities were assumed to be operational for this study.

# Conclusions

When MTBE is eliminated from the US gasoline pool the three most attractive options for handling the excess Isobutylene are:

- 1) Continued production of MTBE and sales to the chemical market for Isobutylene production.
- 2) Conversion of the refinery MTBE unit to the Isooctene process.
- 3) Expansion of the refinery alkylation unit.

Continued operation of the refinery MTBE unit with sales to the chemicals market as Isobutylene feedstock may be competitive with alternate supplies of Isobutylene feedstocks. The BEV(break even value) of Refinery MTBE was calculated at \$13/Bbl. At this value we may be able to displace marginal 'last barrels' that feed the Isobutylene market. Chemical is pursing this option. Baytown MTBE barrels will be the first placed into the chemicals market due to purity and logistics.

The additional capital costs and lower revenue associated with an alky expansion makes it unattractive when compared to converting the MTBE unit to the Isooctene process.

There is no economic incentive to remove MTBE from gasoline production earlier than mandated by law. The margin impact for phasing out MTBE early is estimated at \$25M/YR. This does not reflect any market impact for loss of super or total gasoline production associated with removing 200 KBD of a high-octane gasoline blendstock.

When MTBE is climinated from our gasoline pool the driveability specification will become the limiting specification for production of summertime 7.8/9.0 # Super. Our ability to economically produce 7.8/9.0 # super will be reduced to 50-60 KBD unless a high octane, low distillation component can be found to replace MTBE in our gasoline pool.

The blend value of Isooctene is calculated at \$29.6/Bbl. This is significantly above its octane/RVP blend value of \$25.2/Bbl. The difference is due to its advantageous sulfur and distillation properties.

### Discussion

The Beaumont refinery currently produces approximately 3 KBD of MTBE as a refinery gasoline blendstock. This volume of MTBE is usually supplemented with outside

purchases to produce reformulated gasoline and relieve distillation constraints in conventional gasoline.

Elimination of refinery produced MTBE would orphan approximately 2,400 bpd of isobutylene. With the existing refinery hardware this material would have to be blended into gasoline, processed on the alkylation unit or put to fuel. The economic penalty for eliminating MTBE production from the Beaumont refinery is estimated at \$25M/Yr.

The two most attractive options for handling the orphaned isobutylene are conversion of our MTBE unit to the Isooctene process or expanding our existing alkylation unit. A comparison of the two processes indicates that the alkylation process gives a higher total gasoline yield but a lower yield of super. This can be explained by the chemistry of the two processes. The alkylation process yields 1.76 barrels of gasoline blendstock per barrel of c4 olefin with a corresponding 1.12 barrel loss in isobutane. The Isooctene process yields 0.81 barrels of gasoline blendstock per barrel of c4 olefin. A comparison of the octane values for alkylate and isooctene explains the increased super production associated with the isooctene process. Isooctene has a road octane blending value of 100 compared to a C4 alkylate from isobutylene road octane blend value of 91. As such the economics between these two processes are sensitive to the value of octane as well as the differential between isobutane and gasoline. 2000 P & B Plan pricing for 2004 generates \$3.5 M/Yr of additional credits for the Isooctene process versus alkylation. These credits are achievable with or without the Oxygen Mandate in place.

An alky expansion to handle the volume of Isobutylene currently processed on the MTBE unit would require modification of every major circuit of the unit. The feed and product systems, reactors, heat exchangers, refrigeration and fractionation systems as well as support systems such as tankage, relief, blowdown, electrical, and cooling water systems would all require modification. This type of expansion would be significantly more expensive than converting the MTBE unit to Isooctene production.

The additional capital costs and lower revenue associated with an alky expansion makes it unattractive when compared to converting the MTBE unit to the Isooctene process.

At the Beaumont refinery MTBE is primarily used to meet the oxygen requirement for reformulated gasoline. Its high-octane value also makes it a good blendstock for increasing super production or overcoming operational problems at the reformers. However it has other attractive properties that cause us to blend it into conventional gasoline.

With our world scale reformers reformate makes up a large percentage of our gasoline pool. This is good from an octane, RVP and sulfur perspective. However reformate is a relatively heavy (250+50 % pt) gasoline blendstock. During the summer the driveability specification limts how effectively we can utilize our large reformers.

One of the other attractive properties of MTBE is its low boiling point (131 F). This makes MTBE a great component for controlling driveability as well as endpoint and t-50 in our summer conventional gasoline.

Post the Low Sulfur Mogas Project Beaumont is projected to have the capability to produce 90-100 KBD of super. If MTBE is banned from gasoline the Beaumont refinery's

ability to economically produce super in the summer will be reduced to 50-60 KBD. Approximately 15 KBD of this reduction is due to the loss in octane of MTBE. The remaining 25 KBD is due to MTBE's impact on driveability.

When MTBE is removed from the summer Beaumont gasoline pool the marginal value of driveability(DRI) increases from \$0.002/DRI to \$0.042/DRI. The result is a huge increase in value of gasoline components with a low DRI blend value. For example udex raffinate has a DRI blend value of 964 compared to MTBE at 880, reformate at 1570 and a spec of 1250. When MTBE is removed the blend value of udex raffinate increases by \$3/Bbl.

The economics of octane shift away from making super to upgrading low octane blendstocks such as C6+ and HDC gasoline/lt naphtha to gasoline. This is due to the limited amount of reformate that can fit into a blend of 7.8/9.0 # super.

There are several options available to the Beaumont refinery to relieve the DRI constraint if MTBE is banned from gasoline. The Low Sulfur Mogas project currently combines the FCC gasoline splitter overhead stream with the HDF gasoline product. Segregating these two streams would allow us to take advantage of the low boiling point characteristics of the splitter overhead stream. Unfortunately its octane value (87.7 Road) and sulfur content will limit its use in super.

Another option is to modify the DIH operation to increase IC6 recovery at the expense of NC6 upgrading on the reformer. With the gasoline blending constraints shifting from octane to distillation this option has some merit however the volumes are small enough that this change will not relieve DRI constraints completely.

Convertion of the existing Isomerization unit from C5 to C5/C6 isomerization is another option. This would require significant capital and have process debits associated with lower natural gasoline throughputs. However the octane and distillation credits from converting NC6 to DMB may offset the loss in natural gasoline uplift.

The 2000 P & B Plan pricing had a 1.8 cpg premium on RFG gasoline versus conventional. At that differential there is an incentive to maximize RFG production to approximately 60 KBD. The volume of economical RFG production is limited by the ability of the conventional gasoline pool to absorb reformate and still meet the DRI specification. The driveability spec forces the economics of octane to shift from super production to upgrading low octane blendstocks. This is evidenced by the large incentive to increase RFG regular(\$1.6/Bbl).

These economics of octane are independent of which oxygenate is used. When MTBE is removed and ethanol is used to meet the oxygen requirement for RFG only RFG regular is economical at a 1.8 cpg premium over conventional. There is a large incentive (\$1.9/Bbl) to lower RFG Super production and a \$0.60/Bbl incentive to increase RFG regular. This is due to the limited amount of oxygen that the market will reward us for. That is the market will pay a premium for RFG but the Oxygen specification limits how much oxygenate we can add. When the ethanol content is raised to 7.7 or 10 wt % we hit toxics emissions limits.

If the Oxygen Mandate is dropped altogether the economics of RFG production do not change significantly. The preferred use for octane is still upgrading light, low DRI

blendstocks to gasoline. Unfortunately for Beaumont most of these are low octane such as C6+ or HDC gasoline/it naphtha. With the loss of the low boiling point oxygenates the ability to economically produce super drops to 70 KBD.

PIMS MODEL SOUTHON SUMME Extrahed Beauthorn Referey MODEL: MTREPHASEOUT Study 2000 CoPtun Price for 2004	ry report	8h	ice?		1	·			r:/	9	<u></u>	
OZ MANDATE MTRE ISSED ETIMACI USED MTRE PLANT CONVEXTED	Facilities W YES Y YES H	ITBE Banned ES O ES	Sed Rednery MTBE YES NO YES	AE2 A MO N AE2 A	ispansion YES NO YES	YES	Mandate, MTBE M Allowed M NO N YES N	TBE Barned O O Es :	Ruiti htsOcteps Unit NO NO YES YES	Alky Expansion NO NO YES	ISO-Octene Blend Value No OZ Mandale NO NO	No Oxygen Mandate, No MTBE or Ethanol Blanded NO NO NO
CASE NO.  OB FRAC, HSTD  OBJ FRAC, MSTY;  Deb OBJ FRAC, MSTY;  Deb OBJ FRAC, MSTY;  Deb OBJ FRAC, MSTY;  Oeb OBJ FRAC, MSTY;  Oeb OBJ FRAC, MSTY;  Oeb OBJ FRAC, MSTY;		2.0 4459.0 1827.5 -76.4	3.0 4504.9 1644.3	4.0 4500,8 1542,8 15.2	5.0 44R2.6 1639.8	5.0 4478.7 1634.7	7.6 4532.6 1654.4 8a		9.0 4501.1 1642.9 15,3	10.0 4491.8 1839.5	11.0 4479.0 1534.8	14.0 4519.8 1649.7
Rety WTDE BEV(\$78bi) hisOcitine BEV(\$78bi)			13.3			79.6	·. 8a	se		11,9	29,6	
Aug	per ubu 1.80	-1.50 0,40	-0.70 0.30	-1,20 1,10	-0.85 0.88	Đ. BĐ	0.03 1.70	-1.25 0.15	-0.10 \$.80	-1.00 2.30	2.00	2,30
Coute/Ext Exten  Total Coute  FDC  MTRE(Pure)  Ino-Catene  Alsy	163.4 112.4 1.0 0.0 15.4	351.4 112.4 0.0 0.0 15.5	353.4 112.4 (7.6) 0.0	363,4 112,4 0.0 2.9 14.0	363.4 112.4 0.0 0.0	363.4 112.4 0.6 (2.9)	353.4 132.4 3.6 0.0	383.4 512.4 0.0	363.4 112.4 0.0 2.8	363.4 612.4 0.6 0.0	363.4 112.4 0.0 (2.9)	353.4 12.4 (10)
Gazofines Sold				14.5	19.7	14.0	15.3	15.5	F4.0	19,7	14.0	15.4
Conv NE SUL (9 8) Conv SW SUL (7.8 9) Conv NE RUL (9 8) Conv SW RUL(7.8 9) Total Conventional	69.1 14.7 20.6 42.5 148.8	13.9 14.7 97.3 <u>42.5</u> 168.3	19.1 14.7 88.7 42.5 165.0	34.6 14.7 75.8 42.5 167.6	29.3 14.7 88.0 42.5 371.5	58 4 14,7 52,2 <u>42,5</u> 187,8	68.1 14.7 20.6 42.5 145.3	13,6 14.7 97.9 42,5 168.0	34.3 14.7 76.0 <u>42.5</u> 167.5	79.3 14.7 83.7 47.5 170.2	56.2 14.7 52.8 42.5 166.2	55.5 14.7 68.3 52.5 181.0
Rebn SW SLA Rebn SW RUL Total RFG	17.2 22.5 59 7	25.0 22.5 47.5	25.0 22.5 47.5	25.0 22,5 47,5	25.0 22.5 47.5	25.1 22.5 47.5	37.5 72.5 50.0	25.0 22.5 47.5	25.0 27.5 47.5	25.0 22.5 47.5	26,4 27,5 48.9	0.4 27.5 27.9
TOYAL MOGAS % Super	206.5 \$8.6%	215.8 24.8%	212.5 27.7%	(34.54)	219,0 31.9%	215.1 45.6%	205.3 58.6%	216.1 24.6%	3170	217.7 21.7%/	215.0 45.2%	204.0 34.7%
(Cale to Fuel (C4 Sales Sustanic Asia), ST/O	11,3 160	1.4 10.6 181	11,1 160	12.0 183	8.3 204	1.2 12.2 165	11.2 158	1.4 10 5 151	12.0 163	8.3 204	1.3 12.2 163	11.3 160
FEEDSTOCK PURCHASES  **********************************	53.2 108.5 70.0 131.7 4.5 0.8	53.2 168.5 70.0 131.7 4.6 0.0	50,2 190,5 70,0 101,7 4,6 0,8	55.2 108.5 70.0 131.7 4.5 0.9	\$3.2 108.5 70.0 131.7 4.8 0.8	53.2 108.5 70.6 131.7 4.6 0.8	53.2 108.5 70.0 131.7 4.6 0.8	53.7 108.5 70.0 131.7 4.6 0.0	53.2 108.5 70.0 131.7 4.6 0.8	53.2 108.5 70.0 131.7 4.6 0.8	\$3.2 108.5 70.0 131.7 4.6	53.2 108.5 70.0 131.7 4.5 0.8
Methanol Ethanol MTBE  METHA	0.0 11.1	7.5 0.0	1.0 2.8 0.0	92.1 9.5 2.8 0.0	12.2 6.0 2.6 0.0	0.0 2.6 0.0	0.2 1.D 0.0 10.8	12.0	0,0 2.5	0.0	12.3 0.0 2.4	12.3 1.0 0.0
Purchased Pygas Isa-Octore Purchased Hoy Napron Purchased VGO	2.0 0.0 2.8 20.6	9.0 2.0 30.4	2.0 0.0 9.6 30.8	7.0 0.0 7.8	2.0 0.0 7,9	( <u>6</u> )	2.6 0.0 1.2	0,0 2 o 0,0 9,5	0.0 2.0 0.0 7.9	0 0 2.0 0.0 6.9	9.0 2.0 4.3	0.0 7.0 0.0 2.9
UTILITY PURCHASES  TOTE STANDARD OF STANDARD STA	22.6 23.3 111.7 53.0 0.0	23.5 22.6 109.1 52.3	22.0 24.1 116.9 53.2 0.9	23 7 23.9 .126.0 52.3 0.0	24.8 23.7 111.6 52.8 0.0	21.8 23.7 129.1 52.4 0.0	29.9 18.5 20.3 111.4 53.6 0.0	73.1 22.8 109.7 52.3 0.0	23.5 23.9 126.1 52.3 0.0	25.7 23.7 110.7 52.7 0.0	21.6 23.7 129.1 52.4 0.0	21.8 23.8 112.0 53.1
AX Acrd ton GLD Acrd US \$ PRODUCT SALES	160 9.4	D.O 361 9.B	0,0 160 9,8	0.0 Căr 9 B	D.0 204 9.л	0.0 163 9.7	0.0 158 9.4	0.0 161 9.8	0.0 C81 8.8	0.0 204 9.7	0.0 163 5,3	9.4
Corn IdS SIA. Corn SIA SUL Corn HE RUL Corn HE RUL Corn SIA BUL Retin SIA SUL Retin SI	69.1 14.7 20.5 42.5 37.7 22.5 0.0 14.1 9.0 6.5 46.3 22.3 21.4 8.8	13.9 14.7 97.3 42.5 25.0 22.5 0.0 11.8 9.0 6.5 48.3 20.7 21.4 0.9	19.1 14.7 88.7 42.5 75.0 22.5 4.6 12.1 8.0 6.5 48.3 72.1 2.1 4.0 8.0 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5	34 6 14.7 75.8 42.5 25.0 22.5 0.0 12.0 9.0 65.4 40.3 20.0 21.4 0.8	28.3 14.7 86.0 42.5 25.0 22.5 0.0 91.8 8.0 5.5 49.3 22.0 71.4 0.8	58 4 14.7 52.2 42.5 25.4 22.5 0.0 12.8 9.0 6.5 48.3 22.5 21.4 0 8	68.1 14.7 20 0 42.5 37.5 22.3 0 0 14.7 9.0 6.5 48.3 22.3 21.4 0.8	13.6 14.7 97.9 42.5 25.0 72.5 0.0 11.6 8.0 6.5 48.1 70.2 71.4 0.6	34.3 14.7 76.0 42.5 25.0 27.5 0.0 12.0 9.0 4.5 48.3 72.0 21.4 0.8	29 3 14 7 83.7 42.5 25.6 0 0 11 7 9 0 6 5 48.3 27.9 71.4 0.8	56.2 14.7 52.8 42.5 26.4 22.5 0.0 12.8 9.0 6.5 46.3 22.5 21.4 0.8	55.6 34.7 68.3 42.5 0.4 27.5 (4.6) 13.1 9.0 6.5 48.3 27.3 21.4 0.8 13.6

CONFIDENTIAL MATERIALS

10/12/2000

 ${\tt C. WaspenTech. Models WIBEPHASEOUTWIBEPhase outsuin mary, x is}$ 

	1	2	. 3	4	5	<u>.b</u>	7	8	9	10	) [[	14
Waxes	2.4	2.4	24	2.4	2.4	2.4	24	2.4	2.4	2.4	24	. 24
Low Subtr Hob (CLIA) Starry Of	19.5	10.0			10.8	10.8	10.8	10.8	10.8	10.6	10.8	10.8
Pet Coke ) ligh Suiter	6.9 12.9	7.1 12.5			5.9 12.0	6.9 12.9	7.1 12.5	7,1 12,9	6.9		5.9	8.9
P-P Mix(85 %)	17.8	17.6	17,8	17.8	17.8	17.8	17.8	17.8	12.9 17.8		12.9 17.8	12.9 17.8
Propine HBulane	14,4	10.6		14.1	14.1	14.4	14.3	13.B	14.1		14.4	14,4
N-Butane	11.3 19.0	10.6 19.2		12.0 19.5	8.3 19,1	12.7	11.2	10.6	12.0		12.2	11.3
Fuel Gas	7.6	8.2		7.4	7.5	19.7 7.5	19.1 7.6	19.2 8.2	19,5 7.4	19.1 7.3	19,8	18.9
Net Offgra MCC, FOEB Cat Coke, 5 bit	2.9	2,9	2,9	2.9	2.9	2.9	2.9	2.9	2.9	7.D	7,5 2,9	7.8 2.9
Suthur, 3.19 b/s	4.A 1.6	4.8 1.8	4,6 1.6	4.8 1.8	4.8 1.6	4.8 1.6	4.8 1.5	4.9 1.5	4.8 1,6	4,8 1.6	4,8 1.6	4.8
CAPACITY UTILIZATION							,	,	*,0	*.0	1.0	1.6
Crede Unit A	131.7	121.7	131,7	121.7								
Crude Unit B	21.7	231.7	231.7	231,7	131.7	131.7 231.7	131.7 231.7	131.7 231,7	131.7 231.7	131,7	131,7	131.7
ban Prir	23.1	35.4	35.3	15.5	15.5	35.6	23.3	251,7	35.5	Z11.7 34.7	231.7 35.5	231,7 35,5
Isom Reactor Delsoberanizer	13.1	16.3	10.3	16,3	16,3	18.3	13.2	16.3	18.3	16.1	16.3	35.5 16.2
Pro-3	35.0°	29.7 49.1	31.6 49.1	30.7 49.1	30.1	38.0	35.9	29.4	30,0	30.0	36,0	35.5
CCR-3	75.0	21.2	74.9	49,1	49.1 72.4	49.7 75.0	47.3 75.0	49.1 71.0	49.1 °	49.1	48.7	47,£
Priti-4 CCR-4	\$6,3	58,0	58,3	58.3	58,3	56.0	56.4	\$8.3	73.5 58.3	72.3 58.3	75.0 56.0	75.0 55.6
CCR-4 Udex	85.0 25.4	85.0	85.0	BS.Q	85,0	B5,0	85.0	85.0	85.0	85.0	85.0	B5.0
Toluene Recey Cap	0.3	23.4	24.6	23.9 0.0	23.7 0.0	24.4 0.5	25,5 0.3	23.4	23,2	23.7	24.4	24.8
Benzens Recey Cap	7.6	5.1	6,6	5.5	5.3	6.3	1,7	Q.9 \$.1	0.9 5.5	6.9 5.2	0,9	D.6
Uder Raffesta Cap	17.5	17.4	17.1	17.5	17.5	17.2	17.5	17.4	17,4	17.5	6,3 17.2	6.8 17.4
Bent + Tokenn Pygns Hydrotreater	7.0 7.0	6.0 2.0	7.4 . 3.0	6.4	6.2	7.2	5.0	6.G	5.4	6.2	7.2	7.4
Paranylene Cap	6.5	8.5	5.5	2 a 6.5	2.0 6,5	2.0 5.5	2.0 6,5	2.0 6.5	2.0	2.0	2.0	2.0
Hey Red Spicter	76.5	30.7	29.6	27.8	28.3	26.1	26.4	30.9	6.5 27.7	6.5 26.5	<b>8.5</b> 26.1	8.5 29.0
Mired Xylene Recy Renn Twr Owld	11.2 1.5	11.2	11.5	11.2	11.2	11.0	11.2	11,2	11,2	11.0	11.0	11,1
Return Tear Stote	1.3 9,8	1,4 9,8	1,4 10.0	1.4 8.8	1.4 9.8	1.4	1.6	1.4	1,4	1,4	1.4	1.5
No. 1 Debut Owlid	7.7	7.7	7.7	7.7	3.7	9.8 7.7	9,7 7.7	9.8 7,7	9.9 7.7	9,7 7.7	9.6 7.7	9.7
Bender (Tra-3)	22.3	23.2	23.2	23.0	23.0	22.5	22.3	23.2	23.0	22.9	22.5	7.7 22.3
CHD-1 Kera Eff. CHD-1	48,3 48,3	48.3 48.3	48.3 46.3	48,3	48.3	48.3	48.3	48.3	48.3	45.3	48.3	48.3
CHD-2 LSD	21.6	21.6	21.6	48.3 21.6	48,3 21,6	48.3 21.8	48.3 21.6	48,3	48.3	48.3	48.3	48.3
HOF	25.3	20.6	25.3	25.3	25.3	25.3	25.3	21,6 25.6	21.6 25.3	21.6 24.5	21.6 25.3	21.6
CHO-2 Splitter Yawer Ets CHO-2	25.7	27.0	26.7	25.7	25,7	25.7	25.6	77,0	25,7	24.8	25.7	25.3 25.7
FCCU	47.3 112.4	48.7 112,4	48.4 112.4	47.3	47.3	42.3	47.3	48,7	47.4	46.5	47.3	47,3
Wet Gas Cap(MSCF/D	76,3	78.2	78.3	112.4 78.3	112.4 78.3	182.4 78.3	112,4 28,2	112.4 78.2	112.4 78.3	112.4	112.4	112.4
High Pressure Cap(	60,8	60,9	60.B	60.8	60.B	60.8	60.9	60.9	60.8	76.3 60 B	78,3 60.8	78.3 60.8
SCIX, Buther Cal Color, milisch	3.5	3.6	3.5	3.5	3.5	3.5	3.6	3.6	3.5	3.5	3.5	3,5
FCC 8um Air, macri	79.2 194.0	79.4 196.0	79.2 196.0	79.2 198.0	79.2 198.0	79.2 196.0	79.3 198.0	79,4	79.2	79,2	38.2	79.7
FCC Gasoline Split	53.2	52.0	53.2	53.2	53.2	53.2	528	195.0 52.8	196.0 53.2	186 0 53.2	198.0 53.2	196.0
GPSN PP Recovery	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15,0	15,0	13.0	15.0	53,2 15.0
Afrytain MTBE	15.4 3.0	\$5.5 0.0	15.4 3.0	14.0	19,7	14.0	15.3	15.5	14.0	19.7	14.0	15.4
han-October Unit	0.0	0.0	9.0 0.0	D.O. 2.0	0.0 0.0	0.0 2.9	3.0	0.0	0.0	D,O	0.0	3.0
Hydrocracker	65.C	65.0	65.0	65.0	65.0	65.0	65,0	0.0 65.0	2.9 65.0	0.0 65.0	2.9 55.0	0.0 65.0
HDC Hyd Makrup HDC Gasoline Draw	195.3 11.2	182.5 18,0	195.3 12.5	195,3 180	195.3	195.3 .	191.9	192.5	195.3	195,3	195.3	195.3
HDC Lt Hopisha Dra	31.2	18,0 29.7	12.5 31.5	27.6	18,0 28,5	19.0 25.5	11.1 31.1	18.G	18.0	18.0	18.0	16,1
HDC Kero Orane	0.0	D.Q	0.0	0.D	. 0.0	0.0	0.0	29.4 6 g	27.5 0.0	78.7 5,0	25.5 0.0	26.3 0.0
Coker	39,7	39,7	39,7	39.7	39.7	39.7	1,00	39.7	39.7	39 7	39,7	19,7
Coke, loans Dansol .	2.6 4.1	2.6 4.1	2.6 4.3	2.6 4.1	2.6 4.1	2.6	2.6	2.6	2.6	2.5	2.6	2.5
Furtural Units	24.0	24.0	24.0	24.0	24.0	24.0	4.1 24.0	4. j 24.0	4,1 24.0	4.3 24.0	4,1	4.1
Ketone One Kelone Two	3.5	2.9	2.9	2.9	3.5	2.9	2.9	2.0	3.5	24.0	24.0 2.9	24.0 3.5
H2 Plant	10.1 D.O	10,7 0,0	10,7 0.0	10.7	10.1	10.7	10,7	10.7	10,1	10.7	10.7	10.1
Cold Box(MMSCFD)	25.2	35.2	35.2	0.0 35.2	0.0 35.2	0.0 35.2	0.0 35.2	0.0 35.2	0.0 25.7	0.0	0.0	0.0
Sutter Plant	0.5	0,5	0.5	0.5	0,5	0.5	0.5	0.5	0.5	35 2 0.5	35.2 0.5	15.2 0,5
ECONOMIC SUMMARY ANALYSIS												
PRODUCT SALES FEEDSTOCK PURCHASES	8811,1 4599,1	0503.5 4552.9	9706 5 4698,6	9653,3 4550.8	9648.7 4652.3	9731.6 4756.8	9590.5 4573.2	8599.5 4558.9	9551.5 4549.1	9615.8 4620.0	9728.0 4750,8	9518,4 4500,9
GROSS WARGEN NET UTILITY COSTS	5022.1 490.6	4940.6 481.5	5007.9 500.0	5002.4 501.6	4958.4 503.8	4974.9 498.2	5017.2 484.7	4940,6 461,4	5007,5 501.5	4895.8 504.0	4975.2 496.2	5017.8 497.7
NET OPERATING MARGIN	4531,5	4459.0	4504,9	4500.B	4492.6	4478.7	4532,6	4459.2	4501.1	4491 B	4479.0	4510.8

C.VAspenTech Models\MTBEPHASEOUT\MTBEPhaseoutsummary.xls

10/12/2000

PINS WODEL SOLUTION SUMMARY REPORY ExonMatri Besumont Relinery MODEL: MTBEPHASEOUT Sudy 2000 CoPian Pikes for 2004

Cers 4 @ 0.3 Nat Gas YES NC	7ES 7ES 26.0 4472.1 1632.3		363.4 112.4 0.0 2.6 13.5	34.4 67.0 67.0 68.6 88.6	25.0 22.5 47.5	35.9%	53.2 108.5 70.0
Coss 2 @ 7.3 Net Gas 7.5.5	25 0 4435 5 1619 0		3.63.4 12.1 10.0 0.0 0.0 0.0	15.1 14.7 88.4 42.5 158.7	25.0 22.5 47.5 206.2	25.55 9.4 0	53.2 108.5 70.0 131.7
Mo D2 Mandate, S/D MTBE Volt NO NO	24.0 4450.7 1624.5		353.4 0.24 0.0 0.0 15.8	48.0 14.7 103.1 208.3	0.0 0.0 0.0 0.0 208.3	30.1%	53.2 108.5 70.0 131,7
No Investment, of Co Mandate, Soil MTBE U	D #0 10		363.4 112.4 2.7 0.3 14.6	\$4.3 44.7 85.5 67.0	0.0 0.0 0.0 0.0	35.0% 10.8 0	53.2 108.5 70.0 131.7
Octono nd Vatue - 22 date	11.0 4454.4 1625.8	27.5	362.4 112.4 0.0 2.6 13.3	56.8 14.7 62.9 42.5 76.9	12.3 22.5 34.8 34.8	39.6% 11.6 0	53.2 108.5 70.0 131.7
Bier Bier Ally No	10.0 4480.3 1635.3	F.	363.4 112.4 0.0 0.0	44.2 14.7 88.2 42.5 189.6	22.5 22.5 22.5	87.75 8.3 0	53.2 108.6 70.0 131.7
Build HoOctane A Unit E NO N NO N NO N	9.0	900	353.4 112.4 0.0 2.6 13.3	56.3 14.7 72.3 42.5 165.7	22.5 22.5 22.6 22.6	36.14 11.5	53.2 108.5 10.0 131.7
<b>P</b>	8.0 4458.2 1627.2	0.19	4.521 4.521 0.0 0.0 0.0 0.0	38.4 14,7 93.0 42.5 188.5	22.5 22.5 22.5 241.1	\$ 50 00 00 00 00 00 00 00 00 00 00 00 00	53.2 108.5 70.0 131.7
э, мтве	7.0 7.0 4511.9 1645.9 1645.9	D.54	363.4 112.4 2.7 0.0 14.6	69.6 14.7 21.0 42.5 147.8	35.2 22.5 57.7 205.5	8. C	53.2 108.5 70.0
Iso-Octena Blend Value YES YES	6.0 . 4457.6 1527.0	29.8 -0.67 0.40	363.4 112.4 0.0 2.6 13.3	56.8 14.7 52.3 42.5 166.2	25.0 22.5 47.5 213.7 45.1%	2.0	53.2 108.5 70.0 131.7
Alky Expansion YES NO YES	5.0 4471.5 (632.1	0.69 0.70	363.4 112.4 0.0 0.0 0.0 16.5	25,3 14,7 88,1 42,5 170,5	25.0 22.5 47.5 218.0 29.8%	 	53.2 108.5 70.0 131.7
Build 1330Gtene Unit YES NO YES	4.0 4479.7 1635.1	-0.79 0.58	363,4 112,4 0.0 2.6 13.3	31.2 14.7 78.6 42.5 167.0	25.0 27.5 47.5 33.1%	£.0	53.2 108.5 7.00 7.101
Soft Refinery 13 MTBE CYES Y YES NO NY YES Y YES Y YES NO NY YES Y YES YES	3.0 4496.0 1641.0	13.1	363,4 112.4 2.8 0.0 14.9	26.0 1.4.7 2.2.5 2.2.5 3.0.6 6.8.6	20.0 212.2 31.4%	. g	53.2 108.5 70.0 131.7
andate, E Banned	2.0 4444.3 1622.2 -23.8	.0 47 0 29	361.4 112.4 0.0 0.0 15.5	11.8 14.7 168.3 168.3	23.5 47.5 215.8 23.9%	E. 88 6. 0	53.2 108.5 70.0 131.7 outsumman
w LSM ct lies	1.0 4509.5 1645.0 SE Base Base	57.0	363.4 112.4 2.7 0.0 14.5	73.0 14.7 20.8 42.5 151.0	22.5 53.7 204.7 58.1%	7.01 0	53.2 108.5 131.7 MTBEPhase
2005 Proje YES YES NO	345	Super					HASEOUTU
O2 MANDATE MTBE USED ETHANCL USED MTBE PLANT CONVERTED	CASE NO CASE NO CAS FUNC, NSTO CAS FUNC, MSTY Delia CAS FUNC, MSTY	Re'y MTDE BEV(S/Bb) IsoCztene BEV(S/Bb) RFG Incentive(s/Bb) CELUGE/Cal Rates	Total Crude FCC MRE(Pure) Isp-Octene Alay Gasolines So <u>lo</u>	Conv NE SUL (8 #) Conv SVV SUL(76 #) Corv VE RUL(78 #) Conv SVV RUL(78 #) Total Convertional Refm SVV SUL	Refin SW RUL Total REG TOTAL MCGAS % Suze:	C4- to Fuel C4 Sales Suffure Acid, STD FEEDSTOCK PURCHASES	Custina - 4320954 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2
							J

12/11/2000

Nat Gasoline from IAT	9.7	9.	4.	9.4	ð. 5	9.7	<b>4</b> .5	9.4	9.	<b>9</b>	8	<b>4</b>	4		:
Whart Kalurai Gasseli	. e	9 6	9 6	٠ د د	0.0	D. 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0,0	0.0
Methanol		9 0	5.5	7.70	17.	10 to	9.0	12.1	12.5	12.2	12.5	52	12.5	0.3	0.3
Ethanol	0.0	2.6	2.4	26	2.5	5 4	n c	9 6	0.0	0 0	0.0	9.0	0.0	0.0	0.0
MYBE	51.0	0.0	0.0	0.0	0.0	9		9 6	3 6	0.0	0.0	0.0	0.0	5.6	3'2
Purchased Pygas	2.0	2.0	2.0	2.0	2.0	0.5	2.0	2.0	2.0	2.0	9.5	3 6	9.6	0.0	0.0
	0 1	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	5.0	2 0	0.0	9 6	0.5
Purchased VSO	6.5	6.5	67	80 1	4.5	5.4 1.4	2.6	8.2	8.8	6.9	2	2.	, <del>,</del>	9 6	9 6
)	*	v .	\$ 1.3	30.8	30.3	970.8	30.B	30.4	30.8	30.2	30.2	30.6	30.4	£	78.5 28.6
UTILITY PURCHASES															
•	19.4	122.1	21.1	24.3	25.0	21.9	22.0	2 0			;	;	;		
	21.6	21.2	22.5	22.3	22.1	22.0	2.7	8 00		0.15	23.4	8.1.8	19.3	22.4	24.2
_	111,5	111.2	113.6	123 8	110.7	126.5	112.0	16.0	-	7.77	. 77	21.9	20.7	20.7	21.8
Ē	52.8	52.3	52.6	52.2	52.6	52.2	6	2.5		7.7	56.5	113.5	116.1	104.1	116.0
	0.0	0.0	0.0	0.0	0.0	0.0	00	0		0.7.0	223	62.9	52,4	52,1	6,73
	.0.0	0.0	0.0	0.0	0.0	0.0	0.0	0		9 6	0.0	0 0	0.0	0.0	0.0
z	2.0	0.2	0.2	0.1	2.0	, ,	2	20		9 6	5 6	0.0	0.0	0.0	0.0
G&D Addi US \$	₹.6	9.8	9.6	9.6	9.6	5.7	26	5.6	. 10	, c	- <b>u</b>	7 6	6.2	0.5	
	-									2	3	?	ri Ci	- 0	9.6
PRODUCT SALES															
									٠						
Dony NE SUL	73.0	8.11	26.9	31.2	25.3	36.8	69.6	38.4		44.7	400				
Conv SW SUL	14.7 .	14.7	14.7	7.4	14,7	14.7	14.7				9 1		48.0		7.
Conv NE RUL	20.8	283	84.5	78.6	88.1	52.3	21.0	93.0			ž (		14.7	14.7	7
Conv SW RUL	42.5	42.5	42.5	42.5	42.5	42.5	42.5	42.5		4.00	2 4		103.1	30°	67.0
Relm SW SUL	31.2	25.0	25.0	25.0	25.0	250	35.7	2			2.0		42.5	42.5	42.5
Retin SW RUL	22.5	22.5	18.6	22.5	22.5	20.6	8	, i		2 4	7.7		0.0	25.0	25.0
Refinery MTBE	o o	0.0	4.2	0.0	00		2	5.5		22.0	22.5		0:0	22.5	22.5
Banzene	14.2	11.8	12.2	11.9	13.7	90	5 5	9 5		0.0	0.0	•	0.0	0.0	0.0
Mixed Xylenes	- 0.6	<b>0.6</b>	0.6	9.0	c or			n c			3.0		12.8	11.6	11.7
Paraxylene	6.5	. 6.5	in.	5.5	, 40 (40	) v	) ¥	)   		9.0	9.0		0.0	9.0	9.0
MJAJet	48.3	48.3	48.3	, KB	9 5	0 4	o d	ņ		G.5	6.5		6.5	6.5	5.5
Milhary Jet JP-8	22.2	23.2	12	200	) - -		5 6	5.5		48.3	48.3		48.3	48.3	48.3
Ulira LS Diesel	21.4	21.4	181	21.4		3.5	5.7.5			8.22	22.5		22.5	23.2	23.2
Light Cycle OII	B.D	.80	8	6	. #C		4 E	4.0		21.4	21,4		21.4	21.4	19,7
Lubes	13.6	13.6	13.6	13.6	13.6	136	, t	, u		9 6	9.6		8.0	9.0	0.8
Waxes	2,4	2.4	2.4	2.4	2.4	24	9 4	9.0		9.5	13.6		13.6	13.5	13.6
Low Suifur Not (CUA)	10.6	10.8	10.8	10.8	8.01	10.8	100	, E		,	6.7		2.4	2.4	7.4
Slury 01	7.1	7.7	6.4	6.0	. 6.8	6.9	0	1		5.6	9.0		10.8	10.B	10.8
Pel Coke High Sulfur	12.9	12.9	12.9	12.9	12.9	12.9	. 823	9			ė ;		7.7	Į	€,7
P-P Ma(65 %)	17.8	6.73	17.7	17.8	17,8	17.8	17.8	. <del>.</del>		7 7	6.7.		12.9	12.9	12.9
Propane	14.5	14.2	14.4	14.3	14.2	14.6	7	44		0 4	9 /		17.8	17.6	17.7
L-Butane	10.7	9.5	10.E	11,3	8.1	11,5	10.8	0					14.5	4.0	7
N-Butane	17.2	17.6	17.8	17.9	5.71	17.6	17.4	16.7	17.2	56.8		4.5	0.0 £	e i	11.3
	7.6	n i	E0 :	9.9	8.6		3.2	10,1		0.1	9.5		200	ž u	7.0
Congress recognition	- 57	57	5.9	2.9	2.8	5.9	5.5	5.B		2.9	5.8		2.0	9 0	9 6
(a) (a) (a) (b) (a) (b) (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c			<b>.</b>	8.	4.8	÷	B.4	4.8		£.	4.8		ì	9 6	, r
מתוחו כיום מיו	9	9.		1.6	1.6	6.	9.7	9.1	;	1.6	9.		) t	9 4	÷ .
ACITY STREET AND ACITY OF THE PROPERTY OF THE											}		9	<b>9</b>	a L
-	131.7	2,42	, , 65	,	•	,									
	231.7	231.7	231.7	231.7	735.7	22.7	131.7				•		131.7	131.7	131,7
	23.5	35.4	35.3	35.5	35.5	33.0	2,162 2,15		-	••			231.7	231.7	231.7
Isom Reactor	13.2	16.3	16.3	16.3	6.3	15.6							35.7	23.7	23,7
Delsohexanizer	36.0	53.9	31.0	30.3	79.7	Ş	7.00						16.3	13.4	13.4
Phila	47.3	49.1	49.1	1.67		7 67	2.5						35,6	79.4	3.6
CCR-3	75.0	72.4	73.7	72.6	7.8	750	75.0						8 E	49.1	48.1
94.4	56.3	58.3	58.3	58.3	58.3	96.98	56.4						3.0	71.6	71.5
COR.4	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	5.0	3.6	3. C.	56.7	58.3	58.3
						٠							3	03.0	65.0
Aspen Tach Models WTBEPHASEOUT WTBEPhase putsum	(TBEPhaseout	Summary	<u> </u>			r									

4472.1

4435.5

	25.5	356													
Toluene Recvy Cap		9,5		Ž.	23.6	24.3	25.5	č							
Benzene Recry Cap	7,7	1		60	80	6.0	50		, c	24.9	24.6	25.2	24.4	23	٠
Does Kaninete Cap	17.5	17.4		n e	5.2	6.1	7.7	, v	9		6.0	7.0	6.0	80	•
. Banz + Toluena	<b>9</b> .0	5.2		67	17.5	17.3	5,73		4 5	e i	6.6	7.3	6.3		
Pygae Hydrotreater	2.0			6.3	6.1	7.0	8.0		7.7.	17.2	17.2	17.2	17.2		•
Paraxylene Cap	5.5	i t		O.	2.0	2.0	2.0	. <b>.</b>	-	7.8	7.4	0.0	7.2	. 4	-
Hay Ref Spiriter	26.4			\$C	6.5	6.5	5	7	n ;	2,0	2.0	2.0	20		
Mixed Kylene Rosy	11.2	5.51		#. 187	28.6	78.7	76.4			6.5	6.5	6.5	10	7 2	
Retur Twr Ovho	14			11.2	11.1	11.0		7	26.3	26.6	23.8	25.B	25.5	9 6	
Refun Twr Blms	- 0	e 6		Ŧ.	7	3	· ·		1,0	11.2	17.1	=	7.07	32.0	·
No. 1 Debut Ownd	;	ייני פייני		8.6	5.6	4	2 2	<b>9</b>	<u>.</u>	1,5	3	ĸ	:	=	-
Bender (Trit-3)	- 1	7.7		1.7	7.7	, ,	7. 1	10.0	9.6	7.6	9.5		- (	Ţ.	
O-0-1-4-1	27.7	23.2		23.0	; <u>;</u>	į	1.7	7.7	7.7	7.7		o i	to On i	8.6	_
54.5	48.3	48.3		48.3		7.7	22.3	23.1	22.6	22 0		7	7.7	7.7	
CHD-218D	68.3	48.3		4	7 4		48.3	68.3	48.3	48.3	, , , , , , , , , , , , , , , , , , ,	27 :	22.5	23.2	Ñ
O LICH	21.6	21.6		21.6	2	E	48.3	48.3	48.3	. F. 65	3 4	46.3	48.3	45,3	₹
	. 25.3	26.2			4.1.5	21.6	21.6	21,5	2.6		7	48.3	48.3	48.3	~
Chick Spiriter Tower	. 25.6	26.6		3 7	20	24.9	25,3	25.8	. 75	-	9'17	21.6	21.6	21.6	ċ
E1 CHD?	67.3	48.3		7.5	25.7	29.5	25.7	26.2	2 2	9 2	25.3	25.3	25.3	26.5	* *
2	127	112.4			7.4	45.9	67,3	47.8	; ;	9	25.7	25.7	25,6	26.8	i, F
Wet Gas Cap(MSCF/C	78.2	. 87		112.6	112.4	\$12.4	112.4			47.3	67.4	47.3	47.3	48.8	<b>.</b>
High Pressure Cap(	509	2.07		78.3	78.4	78.3	200	,	112.4	12.4	112.6	112,4	112.4	,	•
SOX, Ibs//rr	. 47	, c		60.8	60.9	8	9	7.0.5	78.3	78.4	78.4	78.3	78.7	9.00	-
Cal Coke, mibs/h	1 0	9 9		e,	8,5	50	9 4	A .	50.6	60,8	60.9	3	3 9	7.67	2
FCC Burn Air, mscl	186.0	7 6		79.2	79.2	79.2	. 6	2 5	n j	3.5	3.5	i c	, ,	8.00 E.00	ğ΄
FCC Gasoline Spik	52.8	396.0		196.0	196,0	195,0	10.1	- S- C-	79.2	79.2	79.2	78.2	9 2	10 e	m
GPSW PP Recovery	9 6	97.8		53.2	53.3	253	7.00.0	196.0	196.0	196.0	196.0	196.0	7 0	18.3	8
Aikylate		0.0		15.0	15.0	0.5	93.6	52.8	53.2	53.3	53.3	6	0.00	196.0	186
MIBE		e i		13,3	18.5	7	2 2	15.0	13.0	15.0	0.51	1.50	0. 0	52.8	Ë
Iso-Outene Unit	N C	0.0		0.0	0.0	0	D P	15.5	13,3	18.5	13.3		3.61	5.0	ŧ.
Hydrocracker	2 6	C.O		2.6	0.0	2 4	1.2	<b>0</b>	0	0,0	. 00	j r	9 1	15.5	Đ,
HOC Hyd Makeug	2,00	65.0		65.0	55.0	2 4	9 6	D)	2.6	0.0	9		3 G	0.0	٥
MDC Gasoling Draw	C.281	192.5		185.3	195.1	2 5	2 ;	65.D	65.0	65.0	. 053	9	0.0	0.0	7
HOC Li Naphita Dea	- T	18.0		18.0	18.0	200	195.3	162.5	195.3	185.1	165.4	00.0	65.0	65.0	65
HDC Kero Draw	- `e	28.6		28.1	5 62	. K	11.2	4.4	18.0	12.9	2		92.5	191.7	104
Coker	0.0	D.G		0.0	G	20.0	- F	29.7	25.8	31.1		7 6	18.0	18.0	5
Cake, tons	39.7	38.7		39.7	2 50	ָבְינָ בְּינִ	0.0	9,0	0.0	0.0	i d	9 0	25.6	g g	29
Duoso	. 9	26		2.6	90	- 1	38.7	7.65	39.7	39.7	100	9 6	0.0	0	ō
Futuralitade	Ş	4.1		,	2 *	9 :	5.6	2.6	2.6	3.6	n d	7.60	39.7	7.65	S
Ketone One	24.0	24.0		24.0		- 2	<b>-</b> ,	5	*	4.1		9 :	2.6	2.6	Ñ
Kelone Two	2.9	. 29		2.8	9 6	2,5	24.0	24.D	24.0	24.0		- 1	Ş	Ş	÷
H2 Plani	10.7	10 7	10.7	7.01	‡ ±	A 1	5.9	2.5	2.9	5.9	2 6		24.0	24.0	24
Cold Box(MRSCFD)	0	0		0.0	6	è	70.7	10.7	10.7	10.7	. 2	n e	9.5	2.9	2.5
Suffer Plant	35.2	35.2		35.2	25.0	2 5	0 :	0.0	0.0	0.0	2	- d	10.0	10.7	10
	60	6.5		0.5	6	9 u	200	35.2	35.2	35.2	35.5	9 5	0.0	0,0	ă
ECONOMIC SUMMARY ANALYSIS						0	50	0.5	5,5	6.0	5 C	33.5	35.2	35.2	35.2
OCH PERSOCERA PERSON PERSON										,	!	ì	e,	6	ő
PRODUCT SALES	9 2539	7.000													
FEEDSTOCK PURCHASES	4562,4	1650.4	4500 v	9585.1	9592.1	9645.2	9556.9	9471.5			į				
20000			ì	* O70	4541.4	4717,5	4579.5	4562.7	4508 H	8489.8 4436.4	9588.4	9304.5	9395.2	9323.6	9360
NET UTILITY COSTS	4970.2 460.7	4903.0	4971.1	4955.8	4950.7	4827.6	4977.5				7700	4344.8	4497.0	4436.6	4419.3
		Š	ń	477.1	479.3	470.1	465.5	450.5	470.4	1953.6	4924.2	4959.7	4698.2	4887.0	4941.7
TEL OFFICE MARGIN	4509.5	4444.3	4496.0	4479.7	44715	3 (37)				7	9.50 9.50 9.50 9.50 9.50 9.50 9.50 9.50	67.9	447.5	451.4	169
					•	2.75	6,110	4458.2	4486.6	1480.3	, , , , , ,				

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Vdex

PIMS MODEL SOLUTION SUMMARY REPORT ExxonMobil Beaumont Refinery MODEL: MYBEPHASEOUT Study 2000 CoPlan Prices for 2004	RY REPORT	S	ρ	So \$ (016)									•
O2 VANDATE MTBE USED ETHANOL USED MTBE PLANT CONVERTED	2005 w LSM Froject Toject YES YES YES NO	OZ Mandate, MTBE Banned YES NO YES		re de la env		Alky Expansion YES NO YES	Iso-Octene Blend Value YES NO YES	No O2 Mandate, MTBE Allowed NO YES NO	No O2 Mandate, MTBE Banned NO NO	Bulld IsoOctene NO ' NO ' NO ' NO '	Alky Expension NO NO	Iso-Octene Blend Value - No O2 Mandate NO NO	
CASE NO. OBJ FUNC, KAVO OBJ FUNC, MS/Y: Deita OBJ FUNC, MS/Y:	13.5 4539.5 1656.9 PASE	Sase	14.0 4456.6 1626.7 30.2	15.0 4514.8 1647.9	16.0 -4495.9 1641.0	17.0 4484.8 1637.0	18.0 4482.7 1635.2	'9.0 4544.1 1658.6					
Delta OBJ FUNC, MS/Yr Deta OBJ FUNC, MS/Yr Deta OBJ FUNC, MS/Yr	•	Base			14.4	10.3			Base	11.7	·.		
Rety MTBE BEV(5/9bi) IsoOctere BEV(5/8bi) RFG 'ncentive(5/8bi)				£.			31,4		99se		ε. C		
Super Regular <u>Crude/Cat Rates</u>	ar 0.01	70	-1,15 0.08	.0.36	1.60	1,43	-0.35 0.50	0.26	-0.12	0.10	0.20	28,4	
Total Crude FCC MTBE(Pure) Iso-Octene Alky	353.4 112.4 2.7 0.0 14.5	& T O M.	363.4 112.4 0.0 0.0 15.5	363.4 12.4 2.8 0.0 15.2	363.4 112.4 0.0 2.6 13.3	353.4 0.0 0.0 0.0 18.5	363.4 112.4 0.0 2.8 13.3	363,4 112,4 2.7 0.0 14,5	353.4 112.4 0.0 0.0 15.5	283.4 4 112.4 0 0.0 0 2.6 13.3	363.4 112.4 0.0 0.0 18.5	363.4 112.4 0.0 2.6 13.3	
Conv NE SUL (9 #) Conv SW SUL(7.9 #) Conv NE RUL (9 #) Conv SW RUL(7.8 #) Total Conventional	. 79.5 14.7 12.0 42.5 149.0	7, 58 59 701	14.3 14.7 95.8 67.5	29.2 14.7 81.0 42.5 167.3	32.1 14.7 76.2 42.5 185.5	27.8 14.7 81.9 <u>62.5</u> 166.8	57.3 14.7 51.1 62.5 165.6	76.4 14.0 14.0 14.5 14.5	44.4 1.4.7 88.6 6.2 8.5 8.5	26.3 7 (4.7 5 72.3 6 72.3 7 72.3	45.5 4.7.7 4.7.4 4.7.4 6.7.4	57.6 14.7 62.2 42.5	
Fefin SW SUL Re'm SW RUL Tala! RFG TOTAL MOGAS	37.5 22.5 60.0	£ 52.4			25.0 22.5 47.5	25.0 22.5 47.5	25.0 22.5 47.5	37.5 22.5 60.0	6.0.15 0.15 0.15			177.0 12.3 22.5 34.8	
% Super IC4= to Fuer	63.2%	214.8 25.1%		212,9 32,3%	213.0 33.7%	214.3 31.5%	213.1	207.5 61.9%	211.2 28.0%	208.3 34.1%	212.3 28.4%	211.7 39.9%	
IC4 Sales Sulture Acid, ST/D FEEDSTOCK PURCHASES	7,01 0	- oi "	. e. . v. o	0.0	5.1.3	8.0 U	2;t 0	10.7 C	2.5 8.8 0	11.5 0	E, O	11.6	
Cusana - 4320954 53.2 53.2 53.2 Maya 4321133 108.5 108.5 0s4 4321166 70.0 0meca 4218951 131.7 131.7 C:WspenTech Models\MTBEPHASEOUT\MTBEPhasenits	53.2 108.5 70.0 131.7 ASEOUTIME	53.2 108.5 70.0 131.7 BEPhasenuts	5 5 7 7 14 14 14 14 14 14 14 14 14 14 14 14 14	53.2 108.5 70.0 131.7	53.2 108.5 70.0 131.7	53.2 108.5 70.0 131.7	53.2 106.5 70.0 131.7	53.2 108.5 70.0 131.7	53.2 108.5 70.0 131.7	53.2 108.5 70.0 131.7	53.2 108.5 70.0 131.7	53.2 108.5 70.0 131.7	

	4.6 4.6	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	975	0.0	2.6 2.6 2.6	0.0 0.0 0.0	2.0 2.0 2.0	0.0 0.0	7 30.7 30.3 30.8 30.4		24.7 26.2 24.7	22.2 22.1 .22.0	122.6 108.3 126.3	52.1 52.4 52.2	0.0	2 0.1 0.2 0.1 0.2	9.7 9.6 9.7	0 4 10 10 10 10 10 10 10 10 10 10 10 10 10	14.7 14.7 14.7	76.2 81.8 51.1	42.5 42.5	25.0 25.0 25.0	0.0	11.8 11.6 12.5	0.6 0.8 0.6	6.5 6.5 6.5	. 22 9 22 B 22 B	21.4 21.1 21,4	0.8 0.8 0.8 1.0.8 1.0.8 1.0.8 1.0.8	2,4 2,4 2,4	10.8 10.8 10.6	12.9 12.9 12.9 12.9	17.8 17.8	14.2 14.1 14.6	17.1 17.1 17.7	8.9 8.7	4.5 2.9 2.9 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5	8.4 8.4 8.1 8.1	!			33.4 32.8 23.3	15.7 15.6 13.2	29.4 34.2 35.9	49.1	58.3 55.9 56.4
. 44		0 11,6	00	) r	0.7	0.0	2.0	0,7	30.4 30.4 23.7	•	23.2		109.3	7'7c	8	0.2 0.2 0.2	8.69	6.00	14.7	95.8	42.5 5.55	25.0	00	11.6	O 4	0.68	23.0	21,4	2 ti	2.4	7.1	12.9 12.9 12.9	17.8	- 6	17.5	د. د. د	, 4, U. 60	1.6		, 4	131,7 131,7 131,7 131,7 231,7 231,7	34.9	16.1	29.4	71.6	58.3

600 B.4	8. C. 7.	6.58	AS O	85.0	85.0	n. r.	0.58	£ 24	, ,	£	n d
Udex	25.5	23.6	24.0	23.7	23.5	24.2	25.5	24.1	24.4	24.8	24.6
Toluene Recvy Cap	0.3	6.0	6.0	0.9	6.0	5.0	0,3	0.9	6.0	6.0	6.0
Benzene Recvy Cap	7.7	ri T	5.6	5.3	10 -	1.	7.7	8) 8)	6.3	6.7	6.9
Udex Raffinate Cap	17.5	17.5	17.5	7.5	17,5	17.3	17.5	17.4	17.2	17.2	17.2
Benz → Tofuene	8.0	6	Б.5 5	5.3	6.0	7,0	6.0	6.7	7.1	7.6	7.4
Pygas Hydrolreater	2,0	2.0	2.0	2.0	2.0	5.0	2.0	2.0	2.0	5.0	2.0
Paraxylene Cap	9.5	, g	დ. i ი ი	5.5	5.6	6.5	6.5	60 ¦	(D)	Б	6.5
Tvy Ker oppulier	797	9 v	27 s	28.4	29.5	76.8	26.4	27.0	26.3	26.6	25.7
wiked Aylene Recy	7.0	- ·	7.	<u>.</u> .	10.8	0.E	11,2	11.3	11.0	1.2	
Bergin Twi Oxag	9 1	4, 6	4.0	4.0	~ ·	4.0	9 +	د. ر 4 و	د. (	٠. ر ن ر	~ ·
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No Despit Office	, ,		- 6	- c	- ' - ' E		, ; , ;	., .	1.1	7.7	) · ·
	7.77	) (1) (1)	0.00	6.27	0.77	6,53	77.7	7.0	9.7.0	677	22.5
5 CHC #1		2 0	4 6 0.00	, c		4 6		5.04		4 5.5 5.0 5.0	£.8.3
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	2.70	5. A.		7.90	7.7	2.7	2 1.0 5 1.0	0.1.7 0.1.0	ם ל קל	2.1.0	4.12
	7 4 6	, ř	7 0	7 7 7	2 6	, ,	2 40	20.5	3.5	20.5	5.05
	77.9		20.00	107	2.0.3	0.47	0.07	7.0.0		0.0.0	0
200 E	, , ,	, C	0.00		į	ė, i	3 1	3.5	3		b'.'d
C1103101110101101101	7 6	7 5	, i	7.7.	72.4	2.5.5 6.6.5	4.21r	112.4	2.2.5	4.2Fr	112.4
Aver des Ceptember 1	7.07	7 6	- ·	7 6	2 6	0 0	7.8.7	7.9.7	6.3	78.4	7 B. 4
Aign Pressore Capt	00.e	y e	 	90.8	6.0.e	3. E	90.6	60.9	60.6 7	60.8 5.1	60.9
100 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	9.05	9 6	7 0.4	0 F	, t	, i	2 4	2 6		, , ,	e i
Cat Coke, midwill	1080	1.00	10.0 C 70.0	195.0	19.2	7.67	a ( )	4.00	7.8.7	73.5	79.2
	9 6	5.00 a C.	2 4	0.061 C.83	20.0	0.08	0.08	0.08	200	7.0°C	0.00
	15.0	0.25.0 0.05.0	0 C	33.2	2	25.7	9.70	97.0	23.2	en e	53.3
Alvelate	) t			 			), t	0.01		.0.01	5.0
DIE LY	7.6	5 6		2 6	2	į	. c	0.0	2 6	0 0	2.0
included to Control	i c	S C	9.7	9.6	9 6	0,0	7.70	2 6	2.0	9 6	0.6
Modeonacker	9	i i		9,50	i f	2. A. A.	2 5	ָ קיני קיני	יי ע פייע	0.0	9 0
HOU Hot Makeno	5.05	192.5	192.4	195.4	10.00 1.00 1.00 1.00	25.25	50.00	200	9 0	2 4	0.00
HDC Garoline Draw	11.	. A.	18.4				7.78	194.0	7.07	~ C	30.1
HDC Lt Naphlya Dra	34	79.4	26.8	28.4	29.6	25.0		2, 4,	, r	0, 0	, '''
HDC Kero Daw	00	00	0.0	0.0	00	a	00	00	0		
Ooker	39,7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	7 95	30.7
Coke, tons	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	
Duosol	4.1	4.1	4.1	4.1	4.	4	4	4	4	4	4
Furfural Units	24.0	24.0	24.0	24.D	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Ketone One	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	<b>8</b>
Ketone Two	10.1	10.1	10.1	10.1	10.1	10.1	10,1	10.1	10.1	10.1	10.1
H2 Plant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cotd Box(MMSCFO)	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2
Sullur Plant	9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	O S	0.5	0.5
ECONOMIC SUMMARY ANALYSIS	•										
			•		;					٠	
PRODUCT SALES FEEDSTOCK PURCHASES	9685.9 4685.9	4622.2	9514.4 4528.4	9575.0 4603.0	9511,1 4546.3	9656.9 4704.0	9649.0 4644.3	9473.2 4551.3	9484,4	9504.7	9606.5 4650.8
22 00 00 00 00 00 00 00 00 00 00 00 00 0	2000	90100	0 000	0 6704	0 7007	0.504	5000	6	0 7 6 6 7	7	,
NET UTILITY COSTS	460.5	459.3	471.2	477.0	480.0	4852.9 470.1	463.5	449.8	470.7	473.0	469.7
NET OPERATING MARGIN	4539 5	4456 6	45:4.B	4495.9	4484.8	4482.7	4544.1	4472.1	4504.0	4494.4	4476.0
									1	II .	

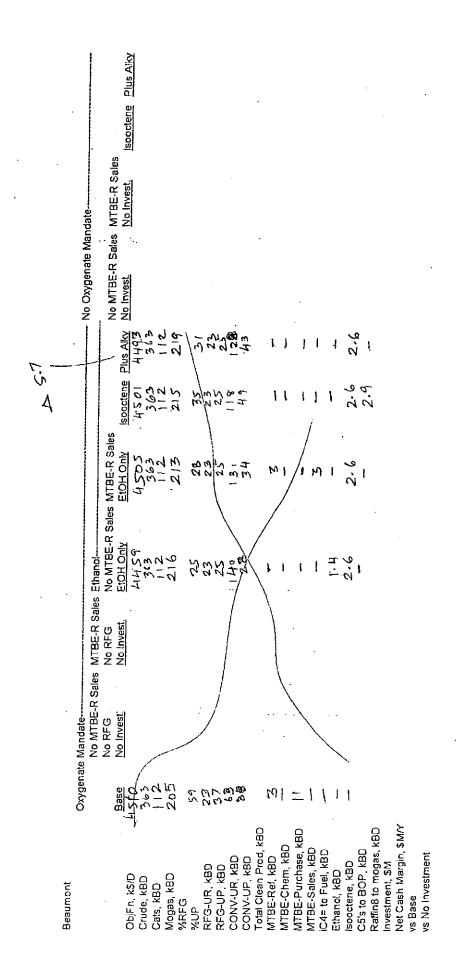
	Plus Alky 4480 363 363 112 212 10.8 23 0 130	, 00000 <b>0</b>
	<u>1800ctene</u> 4487 363 112 209 11:0 34:0 23 0	000000%
date	Mo Invest. #DIV/O! #DIV/O!	
No Oxygenate Mandate No MTBE-R Sales MTB	No Invest 4458 4458 112 112 10.9 25.1 23 0 135 53	0 0 0 0 <u>1.</u> 0 0
	2480 HTZ 4471 3480 347 347 347 347 347 312 112 112 215 26, 218 22.3 27 22.0 33.0 36 29.8 23 29 23 25 25 23 121 1809 130 46 49 40	2.6 2.6 2.6 2.6 2.6 2.6 2.6 2.6
Sales	22 20.8 22 212 23 212 24 212 27 20.8 27 31.1 28 19 19 127 30 41	000000000
thanol——o MTBE-R	4444 (363 (363 (363 (363 (363 (363 (363	0 0 0 0 1.1.0 0 0 0 0 0 0 0 0 0 0 0 0 0
R Sale	4492 363 112 197 0.0 35.0 0 0 128 69	m O O m O O O
Oxygenate Mandate————————————————————————————————————	4451 363 112 208 0.0 30.3 0 0 145 63	0000000
Oxygenat	4510 4510 112 205 26.3 28.0 23 31 63 88	w o t o o o o
	Cruce, RBD Cats, kBD Mogas, kBD %RFG %UP RFG-UR, kBD CONV-UR, kBD CONV-UR, kBD	MTBE-Key, KBU MTBE-Chem, kBD MTBE-Pales, kBD iC4= to Fuel, kBC Ethanol, kBD Isocotene, kBD C5's to BOP, kBD C5's to BOP, kBD Investment, \$M Net Cash Margin, \$M/Y vs Base vs No Investment

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Plus Alky 4480 363 112 212 27.8 27.8 27.8 23 0 0 0 0 0 0
112 209 112 209 110 34.0 23 0 115 71 71 23 0 0 0 0 0 0 0 0
MTBE-R Sales No Invest # DIV/0! # DIV/0!
No Oxygenate Mandate
Plus Alk 44714 363 112 22.0 22.0 23 23 23 130 0 0 0 0 0
Sopertene   4480
es MTBE-R Sales 4496 4496 363 112 212 20.8 31.1 19 25 127 41 6 0 0 0 2.4
ss Ethanol No MTBE-R Sales ETOH Only 4444 363 112 216 22.2 23.6 23.6 25 142 26 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
No MTBE-R Sales MTBE-R Sales Eth A510 No RFG No RFG A511 A451 A451 A452 205 208 197 205 208 197 20 0 0 0 63 0 0 0 63 0 0 0 63 0 0 0 64 0 0 0 65 0 0 0 66 0 0 0 67 0 0 0 68 0 0 0 69 0 0 0 60 0 0 0
No MTBE-R S No RFG 1451 363 30.3 0 0 0 145 63 63 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
888 58.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ObjFn, k\$;D Crude, k3D Crude, k3D Cats, kBD Wagas, kBD %RFG %UP RFG-UP, kBD CONV-UF, kBD Total Clean Prod, kBD MTBE-Ref, kBD MTBE-Chem, kBD MTBE-Chem, kBD MTBE-Chem, kBD MTBE-Sales, kBD GG= to Fuel, kBD IGG= to Fuel, kBD CS's to BOP, kBD CS's to BOP, kBD CS's to BOP, kBD CS's to BOP, kBD Net Cash Margin, \$M/Y vs Base vs No Investment

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			no MTBE- No Invest	4458	2-4 2-4 3-1-	23	- 20°	[2]	İ	٥	2	Đ	0	ا -	<u>Ş</u> .(	<b>&gt;</b> 2	>			
		-	Plus Alky	エイン	10 - 10 m	23	7	0 0 7 2 7	 	0	้อ	0	c	٠ ،	, c	٠ ٧	<b>&gt;</b>			
			Sooctene	4480	2-4 247	23	22.5	2 I. I	<u>.</u>	0	0	0	0	C	90,	2 2	, }			
			$\geq 10$	7720	2-4	D-1	22.	· <del> </del>	: 1	м	0	3	M	, E	2.4	0				
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		ales MTBE-R Sa	No RFG No Invest	363	927	0	082	63	.)	<i>1</i> 0	٥	0	M	0	04	>				
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	Oxygena		Base Ac lo	16. 20.	205	W-	40 - 41	80	!		ο.			3 0	O o					
	Beaumont		ObjFn, kS/D	Crude, KBD Cats, KBD	Mogas, kBD %RFG %UP	RFG-UR, KBD BFG-UR, KBD	CONV-UR, KBD	CONV-UP, KBD	Total Clean Prod, kBD	MTBE-Ref, kBD	MTBE-Chem_kBD	MIBE-Purchase kBD	MIBE-Sales, KBD	Ctaroni kBC Ethanoi kBC	Isooctene, kBD	C5's to BOP, KBD	Raffing to mogas, kBD	Investment, SM Net Cash Margin, 63467	vs Base	vs No Investment



posses and by can be increment yis ics punchus CBIE undure soules questionable due he Rehimeny MTRE